BioMap and Living Waters

Guiding Land Conservation for Biodiversity in Massachusetts

Core Habitats of Yarmouth

This report and associated map provide information about important sites for biodiversity conservation in your area.

This information is intended for conservation planning, and is not intended for use in state regulations.

Produced by:

Natural Heritage & Endangered Species Program
Massachusetts Division of Fisheries and Wildlife
Executive Office of Environmental Affairs
Commonwealth of Massachusetts

Produced in 2004

BioMap and Living Waters:
Guiding Land Conservation for Biodiversity in Massachusetts

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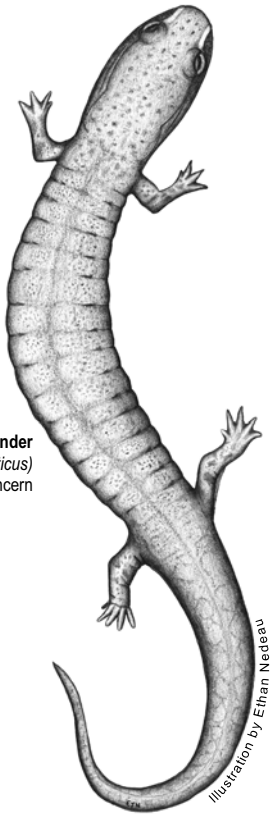
* Depending on the location of Core Habitats, your city or town may not have all of these sections.



Spring Salamander
(Gyrinophilus porphyriticus)
Species of Special Concern

Funding for this project was made available by the Executive Office of Environmental Affairs, contributions to the Natural Heritage & Endangered Species Fund, and through the State Wildlife Grants Program of the US Fish & Wildlife Service.

Natural Heritage & Endangered Species Program

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For more information on rare species and natural communities, please see our fact sheets online at ***www.nhesp.org***

BioMap and Living Waters:
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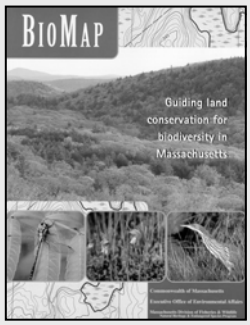
Introduction

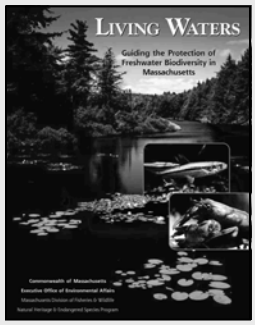
In this report, the Natural Heritage & Endangered Species Program provides you with site-specific biodiversity information for your area. Protecting our biodiversity today will help ensure the full variety of species and natural communities that comprise our native flora and fauna will persist for generatons to come.

The information in this report is the result of two statewide biodiversity conservation planning projects, ***BioMap*** and ***Living Waters***. The goal of the BioMap project, completed in 2001, was to identify and delineate the most important areas for the long-term viability of terrestrial, wetland, and estuarine elements of biodiversity in Massachusetts. The goal of the Living Waters project, completed in 2003, was to identify and delineate the rivers, streams, lakes, and ponds that are important for freshwater biodiversity in the Commonwealth. These two conservation plans are based on documented observations of rare species, natural communities, and exemplary habitats.

What is a Core Habitat?

Both BioMap and Living Waters delineate ***Core Habitats*** that identify the most critical sites for biodiversity conservation across the state. Core Habitats represent habitat for the state's most viable rare plant and animal populations and include exemplary natural communities and aquatic habitats. Core Habitats represent a wide diversity of rare species and natural communities (see Table 1), and these areas are also thought to contain virtually all of the other described species in Massachusetts. Statewide, BioMap Core Habitats encompass 1,380,000 acres of uplands and wetlands, and Living Waters identifies 429 Core Habitats in rivers, streams, lakes, and ponds.





Get your copy of the ***BioMap*** and ***Living Waters*** reports! Contact Natural Heritage at 508-792-7270, Ext. 200 or email natural.heritage@state.ma.us. Posters and detailed technical reports are also available.

Core Habitats and Land Conservation

One of the most effective ways to protect biodiversity for future generations is to protect Core Habitats from adverse human impacts through land conservation. For Living Waters Core Habitats, protection efforts should focus on the ***riparian areas***, the areas of land adjacent to water bodies. A naturally vegetated buffer that extends 330 feet (100 meters) from the water's edge helps to maintain cooler water temperature and to maintain the nutrients, energy, and natural flow of water needed by freshwater species.

In Support of Core Habitats

To further ensure the protection of Core Habitats and Massachusetts' biodiversity in the long-term, the BioMap and Living Waters projects identify two additional areas that help support Core Habitats.

In BioMap, areas shown as ***Supporting Natural Landscape*** provide buffers around the Core Habitats, connectivity between Core Habitats, sufficient space for ecosystems to function, and contiguous undeveloped habitat for common species. Supporting Natural Landscape was

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generated using a Geographic Information Systems (GIS) model, and its exact boundaries are less important than the general areas that it identifies. Supporting Natural Landscape represents potential land protection priorities once Core Habitat protection has been addressed.

In Living Waters, ***Critical Supporting Watersheds*** highlight the immediate portion of the watershed that sustains, or possibly degrades, each freshwater Core Habitat. These areas were also identified using a GIS model. Critical Supporting Watersheds represent developed and undeveloped lands, and can be quite large. Critical Supporting Watersheds can be helpful in land-use planning, and while they are not shown on these maps, they can be viewed in the Living Waters report or downloaded from www.mass.gov/mgis.

Understanding Core Habitat Species, Community, and Habitat Lists

What's in the List?

Included in this report is a list of the species, natural communities, and/or aquatic habitats for each Core Habitat in your city or town. The lists are organized by Core Habitat number.

For the larger Core Habitats that span more than one town, the species and community lists refer to the entire Core Habitat, not just the portion that falls within your city or town. For a list of all the state-listed rare species within your city or town's boundary, whether or not they are in Core Habitat, please see the town rare species lists available at www.nhesp.org.

The list of species and communities within a Core Habitat contains only the species and natural communities that were explicitly included in a given BioMap or Living Waters Core Habitat. Other rare species or examples of other natural communities may fall within the Core Habitat, but for various reasons are not included in the list. For instance, there are a few rare species that are omitted from the list or summary because of their particular sensitivity to the threat of collection. Likewise, the content of many very small Core Habitats are not described in this report or list, often because they contain a single location of a rare plant

Table 1. The number of rare species and types of natural communities explicitly included in the BioMap and Living Waters conservation plans, relative to the total number of native species statewide.

BioMap

	Species and Verified Natural Community Types	
Biodiversity Group	**Included in BioMap**	**Total Statewide**
Vascular Plants	246	1,538
Birds	21	221 breeding species
Reptiles	11	25
Amphibians	6	21
Mammals	4	85
Moths and Butterflies	52	An estimated 2,500 to 3,000
Damselflies and Dragonflies	25	An estimated 165
Beetles	10	An estimated 2,500 to 4,000
Natural Communities	92	> 105 community types

Living Waters

	Species	
Biodiversity Group	**Included in Living Waters**	**Total Statewide**
Aquatic Vascular Plants	23	114
Fishes	11	57
Mussels	7	12
Aquatic Invertebrates	23	An estimated > 2500

species. Some Core Habitats were created for suites of common species, such as forest birds, which are particularly threatened by habitat fragmentation. In these cases, the individual common species are not listed.

What does 'Status' mean?

The Division of Fisheries and Wildlife determines a status category for each rare species listed under the Massachusetts Endangered Species Act, M.G.L. c.131A, and its implementing regulations, 321 CMR 10.00. Rare species are categorized as Endangered, Threatened, or of Special Concern according to the following:

- ***Endangered*** species are in danger of extinction throughout all or a significant portion of their range or are in danger of extirpation from Massachusetts.
- ***Threatened*** species are likely to become Endangered in Massachusetts in the foreseeable future throughout all or a significant portion of their range.
- ***Special Concern*** species have suffered a decline that could threaten the species if allowed to continue unchecked or occur in such small numbers or with such restricted distribution or specialized habitat requirements that they could easily become Threatened in Massachusetts.

In addition, the Natural Heritage & Endangered Species Program maintains an unofficial ***watch list*** of plants that are tracked due to potential conservation interest or concern, but are not regulated under the Massachusetts Endangered Species Act or other laws or regulations. Likewise, described natural communities are not regulated any laws or regulations, but they can help to identify ecologically important areas that are worthy of protection. The status of natural communities reflects the documented number and acreages of each community type in the state:

- ***Critically Imperiled*** communities typically have 5 or fewer documented sites or have very few remaining acres in the state.
- ***Imperiled*** communities typically have 6-20 sites or few remaining acres in the state.
- ***Vulnerable*** communities typically have 21-100 sites or limited acreage across the state.
- ***Secure*** communities typically have over 100 sites or abundant acreage across the state; however excellent examples are identified as Core Habitat to ensure continued protection.

Legal Protection of Biodiversity

BioMap and Living Waters present a powerful vision of what Massachusetts would look like with full protection of the land that supports most of our biodiversity. To create this vision, some populations of state-listed rare species were deemed more likely to survive over the long-term than others.

Regardless of their potential viability, all sites of state-listed species have full legal protection under the Massachusetts Endangered Species Act (M.G.L. c.131A) and its implementing regulations (321 CMR 10.00). Habitat of state-listed wildlife is also protected under the Wetlands Protection Act Regulations (310 CMR 10.37 and 10.59). The ***Massachusetts Natural Heritage Atlas*** shows **Priority Habitats**, which are used for regulation under the Massachusetts Endangered Species Act and Massachusetts Environmental Policy Act (M.G.L. c.30) and **Estimated Habitats**, which are used for regulation of rare wildlife habitat under the Wetlands Protection Act. For more information on rare species regulations, see the *Massachusetts Natural Heritage Atlas*, available from the Natural Heritage & Endangered Species Program in book and CD formats.

BioMap and Living Waters are conservation planning tools and do not, in any way, supplant the Estimated and Priority Habitat Maps which have regulatory significance. Unless and until the combined BioMap and Living Waters vision is fully realized, we must continue to protect all populations of our state-listed species and their habitats through environmental regulation.

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Understanding Core Habitat Summaries

Following the BioMap and Living Waters Core Habitat species and community lists, there is a descriptive summary of each Core Habitat that occurs in your city or town. This summary highlights some of the outstanding characteristics of each Core Habitat, and will help you learn more about your city or town's biodiversity. You can find out more information about many of these species and natural communities by looking at specific ***fact sheets*** at www.nhesp.org.

Next Steps

BioMap and Living Waters were created in part to help cities and towns prioritize their land protection efforts. While there are many reasons to conserve land – drinking water protection, recreation, agriculture, aesthetics, and others – BioMap and Living Waters Core Habitats are especially helpful to municipalities seeking to protect the rare species, natural communities, and overall biodiversity within their boundaries. Please use this report and map along with the rare species and community fact sheets to appreciate and understand the biological treasures in your city or town.

Protecting Larger Core Habitats

Core Habitats vary considerably in size. For example, the average BioMap Core Habitat is 800 acres, but Core Habitats can range from less than 10 acres to greater than 100,000 acres. These larger areas reflect the amount of land needed by some animal species for breeding, feeding, nesting, overwintering, and long-term survival. Protecting areas of this size can be very challenging, and requires developing partnerships with neighboring towns.

Prioritizing the protection of certain areas within larger Core Habitats can be accomplished through further consultation with Natural Heritage Program biologists, and through additional field research to identify the most important areas of the Core Habitat.

Additional Information

If you have any questions about this report, or if you need help protecting land for biodiversity in your community, the Natural Heritage & Endangered Species Program staff looks forward to working with you.

Contact the Natural Heritage & Endangered Species Program:

by Phone *508-792-7270, Ext. 200*

by Fax: *508-792-7821*

by Email: *natural.heritage@state.ma.us*.

by Mail: *North Drive*
Westborough, MA 01581

The GIS datalayers of BioMap and Living Waters Core Habitats are available for download from MassGIS: www.mass.gov/mgis

Check out www.nhesp.org for information on:

- Rare species in your town
- Rare species fact sheets
- BioMap and Living Waters projects
- Natural Heritage publications, including:
  - Field guides
  - Natural Heritage Atlas, and more!

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BioMap: Species and Natural Communities

Yarmouth

Core Habitat BM1277

Vertebrates

Common Name	Scientific Name	Status
Common Tern	*Sterna hirundo*	Special Concern
Least Tern	*Sterna antillarum*	Special Concern
Piping Plover	*Charadrius melodus*	Threatened
Roseate Tern	*Sterna dougallii*	Endangered

Core Habitat BM1322

Natural Communities

Common Name	Scientific Name	Status
Coastal Plain Pondshore		Imperiled

Plants

Common Name	Scientific Name	Status
Plymouth Gentian	*Sabatia kennedyana*	Special Concern
Redroot	*Lachnanthes caroliana*	Special Concern

Invertebrates

Common Name	Scientific Name	Status
Water-Willow Stem Borer	*Papaipema sulphurata*	Threatened

Core Habitat BM1337

Plants

Common Name	Scientific Name	Status
Small Site for Rare Plant		

Core Habitat BM1338

Plants

Common Name	Scientific Name	Status
Small Site for Rare Plant		

BioMap: Species and Natural Communities

Yarmouth

Core Habitat BM1343

Natural Communities

Common Name	Scientific Name	Status
Coastal Atlantic White Cedar Swamp		Imperiled
Coastal Plain Pondshore		Imperiled

Plants

Common Name	Scientific Name	Status
Heartleaf Twayblade	*Listera cordata*	Endangered
Inundated Horned-Sedge	*Rhynchospora inundata*	Threatened
Long-Beaked Bald-Sedge	*Rhynchospora scirpoides*	Special Concern
Mattamuskeet Panic-Grass	*Dichanthelium dichotomum ssp. mattamuskeetense*	Endangered
Plymouth Gentian	*Sabatia kennedyana*	Special Concern
Pondshore-dodder	*Cuscuta coryli*	Watch Listed
Redroot	*Lachnanthes caroliana*	Special Concern
Reticulate Nut-Sedge	*Scleria reticularis*	Watch Listed
Short-Beaked Bald-Sedge	*Rhynchospora nitens*	Threatened
Slender Marsh Pink	*Sabatia campanulata*	Endangered
Terete Arrowhead	*Sagittaria teres*	Special Concern
Torrey's Beak-Sedge	*Rhynchospora torreyana*	Endangered
Wright's Panic-grass	*Dichanthelium wrightianum*	Special Concern

Invertebrates

Common Name	Scientific Name	Status
Barrens Buckmoth	*Hemileuca maia*	Special Concern
Comet Darner	*Anax longipes*	Special Concern
New England Bluet	*Enallagma laterale*	Special Concern
Pine Barrens Bluet	*Enallagma recurvatum*	Threatened
Water-Willow Stem Borer	*Papaipema sulphurata*	Threatened

Vertebrates

Common Name	Scientific Name	Status
Northern Parula	*Parula americana*	Threatened

Core Habitat BM1368

Plants

Common Name	Scientific Name	Status
Small Site for Rare Plant		

Core Habitat BM1370

Invertebrates

Common Name	Scientific Name	Status
New England Bluet	*Enallagma laterale*	Special Concern

Core Habitat BM1372

Vertebrates

Common Name	Scientific Name	Status
Common Tern	*Sterna hirundo*	Special Concern
Least Tern	*Sterna antillarum*	Special Concern
Piping Plover	*Charadrius melodus*	Threatened
Roseate Tern	*Sterna dougallii*	Endangered

Core Habitat BM1393

Vertebrates

Common Name	Scientific Name	Status
Piping Plover	*Charadrius melodus*	Threatened

Core Habitat BM1395

Plants

Common Name	Scientific Name	Status
Small Site for Rare Plant		

Core Habitat BM1399

Vertebrates

Common Name	Scientific Name	Status
Least Tern	*Sterna antillarum*	Special Concern
Piping Plover	*Charadrius melodus*	Threatened

Core Habitat BM1402

Vertebrates

Common Name	Scientific Name	Status
Piping Plover	*Charadrius melodus*	Threatened

BioMap: Core Habitat Summaries

Yarmouth

Core Habitat BM1277

Vertebrates

This Core Habitat encompasses coastal waterbird breeding colonies at Chapin Beach and Gray's Beach. These sites support breeding Piping Plovers, Least Terns, Common Terns, and, in some years, Roseate Terns. Gray's Beach hosts one of the most important Common Tern colonies in the state. Potential threats to nesting coastal waterbirds include habitat alteration and loss, human disturbance, and predation. Annual protection from these threats is needed.

Core Habitat BM1322

Natural Communities

This Core Habitat contains a complex of Coastal Plain Ponds, including two that are considered very high quality due to a lack of disturbance, excellent buffering, and intact and diverse pondshore vegetation. In addition, they are unaffected by cranberry operations or public water supply wells. Coastal Plain Pondshores are globally rare herbaceous communities of exposed pondshores with a distinct Coastal Plain flora. Water levels change with the water table, typically leaving an exposed shoreline in late summer where many rare species grow.

Plants

Redroot, an unusual plant of the Coastal Plain, is found in one part of this Core Habitat. In addition, a population of the beautiful and globally rare Plymouth Gentian is growing within this area.

Invertebrates

The shoreline of Dennis Pond, Miller Pond, Muddy Pond, Greenough Pond, and Little Greenough Pond are habitat for the Water-willow Stem Borer moth, a Threatened species that is found nowhere in the world outside of Massachusetts. All of these ponds are located in close proximity to each other and within an undeveloped and unfragmented landscape. This setting allows for unimpeded dispersal of Water-willow Stem Borer moths between the ponds, which is important to maintain a viable population of this species.

BioMap: Core Habitat Summaries

Yarmouth

Core Habitat BM1343

Spanning Barnstable and Yarmouth, this Core Habitat contains a cluster of Coastal Plain Ponds considered by many experts to be the best example of this globally rare community type in the world. Here the pondshores support a rare moth species, rare dragonfly and damselfly species, as well as outstanding areas of plant biodiversity. The ponds are surrounded by an extensive Pitch Pine-Oak Forest that supports other rare invertebrates, such as the Barrens Buckmoth. While some of this Core Habitat is on protected land, conservation of the remaining unprotected areas would help ensure the long-term viability of the rare species found here.

Natural Communities

This Core Habitat contains a cluster of Coastal Plain Pondshore communities in Barnstable considered by many experts to be the best in the world. Coastal Plain Pondshores are globally rare herbaceous communities of exposed pondshores with a distinct Coastal Plain flora. Water levels change with the water table, typically leaving an exposed shoreline in late summer where many rare species grow. The ponds here are associated with many rare plant species, are well-buffered by an extensive Pitch Pine-Oak Forest, and experience minimal disturbances. In Yarmouth, this Core Habitat also includes a good-quality Coastal Atlantic White Cedar Swamp and another good-quality Coastal Plain Pondshore community.

Plants

Dense clusters of rare plant occurrences grow around Coastal Plain pondshores within this Core Habitat. Some characteristic members of this globally rare community type include Plymouth Gentian, Redroot, Reticulate Nut-Sedge, and Terete Arrowhead. The Endangered Torrey's Beak-Sedge and Mattamuskeet Panic-Grass are two of the more uncommon plant species found within this rich hub of plant biodiversity.

Invertebrates

Coastal Plain ponds within this Core Habitat, including Flintrock, Israel, Little Israel, Mary Dunn, Lamson, Little Sandy, Horse, and Bassetts Lot Ponds, as well as numerous smaller ponds, all provide habitat for rare dragonflies and damselflies including the Comet Darner, New England Bluet, and Pine Barrens Bluet, as well as for the Water-willow Stem Borer moth. All of these ponds are located within a large area of relatively undeveloped landscape, allowing for unimpeded dispersal of their rare species inhabitants. In addition, the terrestrial habitats within this Core Habitat include pitch pine - scrub oak barrens, which are inhabited by the Barrens Buckmoth and other rare barrens invertebrates.

Vertebrates

This Core Habitat contains a small area of wooded swamp and upland forest adjacent to Little Sandy Pond and a portion of Howes River. This area has supported breeding habitat for Northern Parula warblers in the past, and needs protection from further fragmentation by development.

BioMap: Core Habitat Summaries

Yarmouth

Core Habitat BM1370

Invertebrates

This Core Habitat includes Jabinettes Pond, which is habitat for the rare New England Bluet damselfly. Although surrounded by development, this Core Habitat is located less than 5 km from populations of the New England Bluet at Horse Pond in Yarmouth and at Mary Dunn Pond in Barnstable, which allows for occasional dispersal of damselflies between these locations. It appears that none of this Core Habitat is on protected land.

Core Habitat BM1372

Vertebrates

West Dennis Beach supports breeding Piping Plovers, Least Terns, Common Terns, and, in the past, Roseate Terns. Potential threats to nesting coastal waterbirds include habitat alteration and loss, human disturbance, and predation. Annual protection from these threats is needed.

Core Habitat BM1393

Vertebrates

Seagull Beach and Radio City supports breeding Piping Plovers. Potential threats to nesting coastal waterbirds include habitat alteration and loss, human disturbance, and predation. Annual protection from these threats is needed.

Core Habitat BM1399

Vertebrates

The "causeway" portion of Great Island supports breeding Piping Plovers and, in some years, Least Terns. Potential threats to nesting coastal waterbirds include habitat alteration and loss, human disturbance, and predation. Annual protection from these threats is needed.

Core Habitat BM1402

Vertebrates

Smiths Point on Great Island supports breeding Piping Plovers. Potential threats to nesting coastal waterbirds include habitat alteration and loss, human disturbance (including dogs), and predation. Annual protection from these threats is needed.

Help Save Endangered Wildlife!

Please contribute on your Massachusetts income tax form or directly to the

Natural Heritage &
Endangered Species Fund

To learn more about the Natural Heritage & Endangered Species Program and the Commonwealth's rare species, visit our web site at: www.nhesp.org.